

IN THE CLAIMS

1. (currently amended) A core for a nuclear reactor comprising:

a plurality of separate independent fuel ~~bundles~~ assemblies, each said separate independent fuel ~~bundle~~ assembly comprising a handle to facilitate lowering said fuel ~~bundle~~ assembly into said core; and

a plurality of large control rods, each said control rod comprising four control rod blades extending radially from a central portion and arranged at right angles to each other, said blades defining four fuel ~~bundle~~ assembly receiving channels, said control rods arranged in a plurality of staggered rows with only four separate independent fuel ~~bundles~~ assemblies in each said receiving channel and two sides of each of said four separate independent fuel ~~bundles~~ assemblies adjacent a control rod blade.

2. (currently amended) A core in accordance with Claim 1 wherein said large control rods and said plurality of fuel ~~bundles~~ assemblies define a plurality of fuel cells, each said fuel cell comprising a large control rod and four fuel ~~bundles~~ assemblies in each said receiving channel of said large control rod, said plurality of fuel cells arranged so that said control rods are in a staggered row pattern where each side of each said receiving channel of a fuel cell is adjacent to, and substantially parallel to a control rod blade.

3. (canceled)

4. (original) A core in accordance with Claim 1 further comprising a top guide having a plurality of top guide beams configured to define a plurality of openings.

5. (currently amended) A core in accordance with Claim 4 further comprising a core plate spaced from said top guide, said fuel ~~bundles~~ assemblies extending between said top guide and said core plate.

6. (currently amended) A core for a nuclear reactor comprising a plurality of fuel cells, each said fuel cell comprising;

a large control rod comprising four control rod blades extending radially from a central portion and arranged at right angles to each other, said blades defining four quadrants of said fuel cell, each said quadrant containing only four separate independent fuel ~~bundles~~ assemblies, each said separate independent fuel ~~bundle~~ assembly comprising a handle to facilitate lowering said fuel ~~bundle~~ assembly into said core;

said plurality of fuel cells arranged so that said control rods are in a staggered row pattern where each side of each said quadrant of a fuel cell is adjacent to a control rod blade.

7. (canceled)

8. (original) A core in accordance with Claim 6 further comprising a top guide having a plurality of top guide beams configured to define a plurality of openings.

9. (currently amended) A core in accordance with Claim 8 further comprising a core plate spaced from said top guide, said fuel ~~bundles~~ assemblies extending between said top guide and said core plate.

10. (currently amended) A nuclear reactor core configuration, said core comprising a plurality of separate independent fuel ~~bundles~~ assemblies and a plurality of large control rods, each said separate independent fuel ~~bundle~~ assembly comprising a handle to facilitate lowering said fuel ~~bundle~~ assembly into said core, each said control rod comprising four control rod blades extending radially from a central portion and arranged at right angles to each other, said blades defining four fuel ~~bundle~~ assembly receiving channels, said configuration comprising:

said plurality of large control rods arranged in a staggered row pattern; and

said fuel ~~bundles~~ assemblies arranged with only four separate independent fuel ~~bundles~~ assemblies in each said receiving channel and two sides of each of said four separate independent fuel ~~bundles~~ assemblies adjacent a control rod blade.

11. (canceled)

12. (original) A nuclear reactor core configuration in accordance with Claim 10 wherein said core further comprises a top guide having a plurality of top guide beams configured to define a plurality of openings.

13. (currently amended) A nuclear reactor core configuration in accordance with Claim 12 further comprising a core plate spaced from said top guide, said fuel ~~bundles~~ assemblies extending between said top guide and said core plate.